| | |
|---|---|
| **From:** | Powers, David |
| **Sent time:** | 01/14/2014 04:53:15 PM |
| **To:** | SEEDS Joshua <SEEDS.Joshua@deq.state.or.us> |
| **Cc:** | Henning, Alan; Leinenbach, Peter |
| **Subject:** | RE: Hinkle Creek sediment |
| **Attachments:** | OR FPA Trask PWS Brochure.pdf Hinkle.ppt hinkle creek e-mail 10 20 2010 |

Josh – I apologize. I have a couple of e-mails in our old LotusNotes e-mail system that I'm not able to send to our new MicroSoft Outlook e-mail system. Since Peter sent me the e-mail I was hoping he still had it and could send to you I have attached a file that has ppt's that do show the Hinkle Creek Road network. Note the stream parallel mainstem road in the N. Fork control watershed…also some headwater roads. I'll try to print out the LotusNotes files tomorrow a.m. and walk over to you. I've also attached a PRC file with good with info. Our e-mail system sucks.

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**From:** SEEDS Joshua [mailto:SEEDS.Joshua@deq.state.or.us]
**Sent:** Tuesday, January 14, 2014 4:02 PM
**To:** Powers, David
**Subject:** Hinkle Creek sediment

Dave,
Did you have a chance to locate the analysis of road location that Peter L. did for Hinkle Creek? I am assembling information in preparation for science meetings with ODF. It could be really important for talking to the Board of Forestry and EQC.

Thanks,
Josh

Joshua Seeds
Nonpoint Source Pollution Analyst
Drinking Water Protection Program
Oregon Department of Environmental Quality
811 SW 6th Ave.
Portland, OR 97204
Phone: 503-229-5081 Fax: 503-229-6037
Email: seeds.joshua@deq.state.or.us

WATERSHEDS RESEARCH COOPERATIVE

# TRASK RIVER PAIRED WATERSHED STUDY

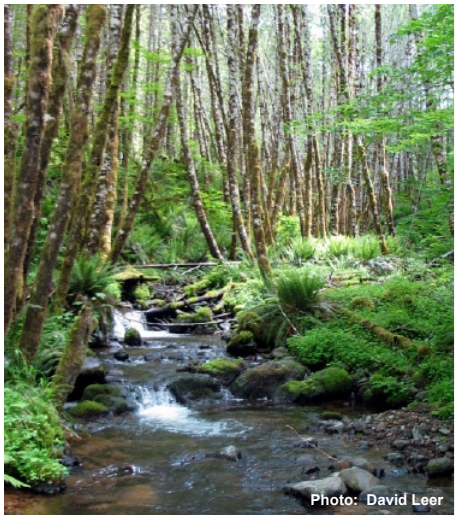
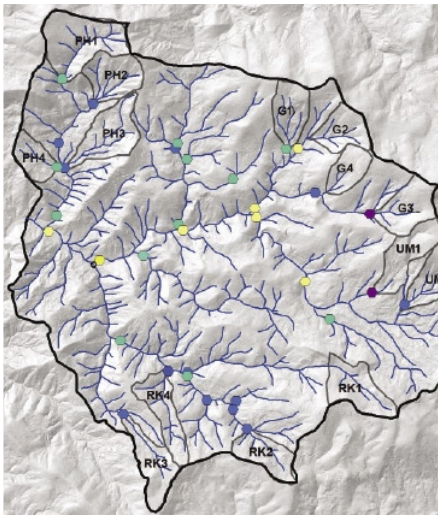


Photo: David Leer


Photo: Broome McCreary

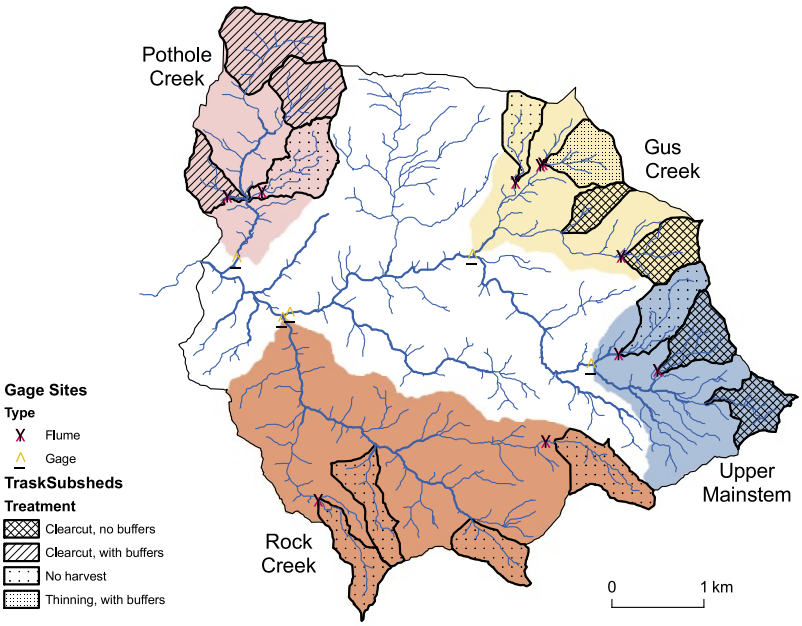



## One of three comprehensive, decade-long studies of forest streams and the effects of contemporary forest practices across Western Oregon.

Small, non-fish-bearing streams can comprise 80 percent or more of all stream miles within a watershed. These small streams may be more sensitive to the effects of forest harvest than larger downriver streams. While the Oregon Forest Practices Act (OFPA) requires tree-retaining buffers when clearcutting or thinning along fish-bearing streams, buffers are not required along these smaller streams. Headwaters of the Trask River basin are the setting for an important study examining the effects of forest harvest in headwater streams and effects on fish-bearing streams immediately downstream. This study is taking place on property owned by the Weyerhaeuser Company, the Oregon Department of Forestry (ODF) and the U.S. Bureau of Land Management (BLM). Research results are likely to play an important role in decisions about future forest practices, including the OFPA.

- This study is examining the effects of timber harvest on small non-fish bearing streams, as well as downstream effects on larger fish-bearing streams.
- Harvesting will only take place near small, non-fish-bearing streams using a variety of stream buffer designs.
- Research is examining the effects of timber harvest on fish and other aquatic organisms, water quality and streamflow.

## TRASK RIVER STUDY AREA




## THE STUDY

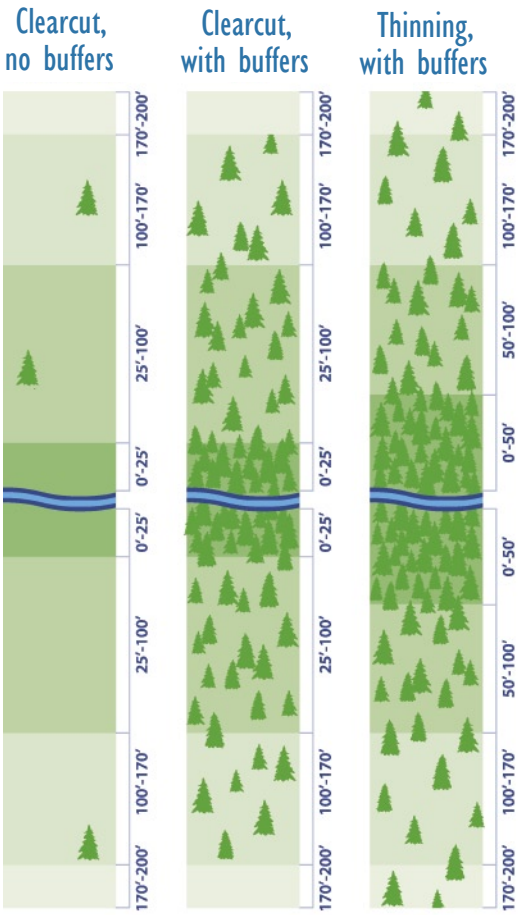
The Trask River Watershed Study will examine three different best management practices (BMPs) across three ownerships when harvesting around small non-fish-bearing streams. The study will test the effectiveness of these BMPs in achieving stream protection goals. The study is tackling important questions about the effects of logging on fish, amphibians, birds, insects and water quality. In this study, reference areas are being left unharvested, while treatment areas are being harvested under provisions of the Oregon Forest Practices Act (OFPA), state and federal forest management plans, with or without stream buffers of differing widths.


## PAIRED AND NESTED STUDY DESIGN

Within the Trask study area, four watersheds have been identified. One area (the reference watershed) is left unharvested. The three other areas (the treatment watersheds) are logged using contemporary BMPs. Although both fish-bearing and non-fish-bearing streams are being studied, harvest will only occur around the non-fish-bearing streams in the following ways:

- Rock Creek will serve as the reference.
- Pothole Creek will be clearcut with stream buffers.
- Upper Mainstem will be clearcut without stream buffers.
- Basalt Creek will be a mixed-treatment area: clearcut and thinning with and without stream buffers.

In the three treatment watersheds, harvest treatments will use stream buffers around non-fish-bearing streams as depicted below:



## MAJOR RESEARCH PROJECTS

### Baseline Data Collection

What are the pre-harvest conditions in the small non-fish-bearing streams and downstream in the fish-bearing sections? Research over the first five years of the study will provide data on Trask River Watershed vegetation, geology, landforms, hydrology and biology. Much of the study area was affected by three of the Tillamook Burn fires over 55 years ago. Current overstory is predominantly Douglas-fir with red alder along many stream channels.

### Water Quantity and Quality

How does forest harvest affect temperature, flow and sediments in the headwaters? Are effects detected downstream? Sophisticated instruments are used to document effects. Stream gauges automatically record water depth, temperature and turbidity every ten minutes, year-round. Physical characteristics of sites, including vegetative cover, soils and gradients also are being monitored.

Photo: Sherri Johnson

Photo: Maryanne Reit

### Fish

How does natural variability and forest harvest influence fish population? Researchers are using traps and weirs to capture fish. By observing individual fish, scientists are able to identify habitat characteristics within each location that are most important to coastal cutthroat trout, steelhead trout and coho salmon.

### Macroinvertebrates

What are the effects of adjacent forest harvest on instream insects and crustaceans? Are effects transferred downstream? Samples will be collected and counted from headwater and downstream sites. The presence and dominance of sensitive species will be identified.

### Amphibians

What are the effects of adjacent forest harvest on amphibians? Are effects transferred downstream? Amphibians can be particularly sensitive to changes in water temperature and fine sediment, which may be affected by forest harvest. The Trask study will explore movement, growth, survival and condition of amphibians like tailed frogs and Pacific giant salamanders to reach an understanding of population-level responses to changes in habitat conditions.

## RESEARCH TIMELINE

| 2006–2010 | 2011 | 2012 | 2013–2016 |
|---|---|---|---|
| Baseline Data Collection | Road Construction | Harvest | Post-Treatment Data Collection |

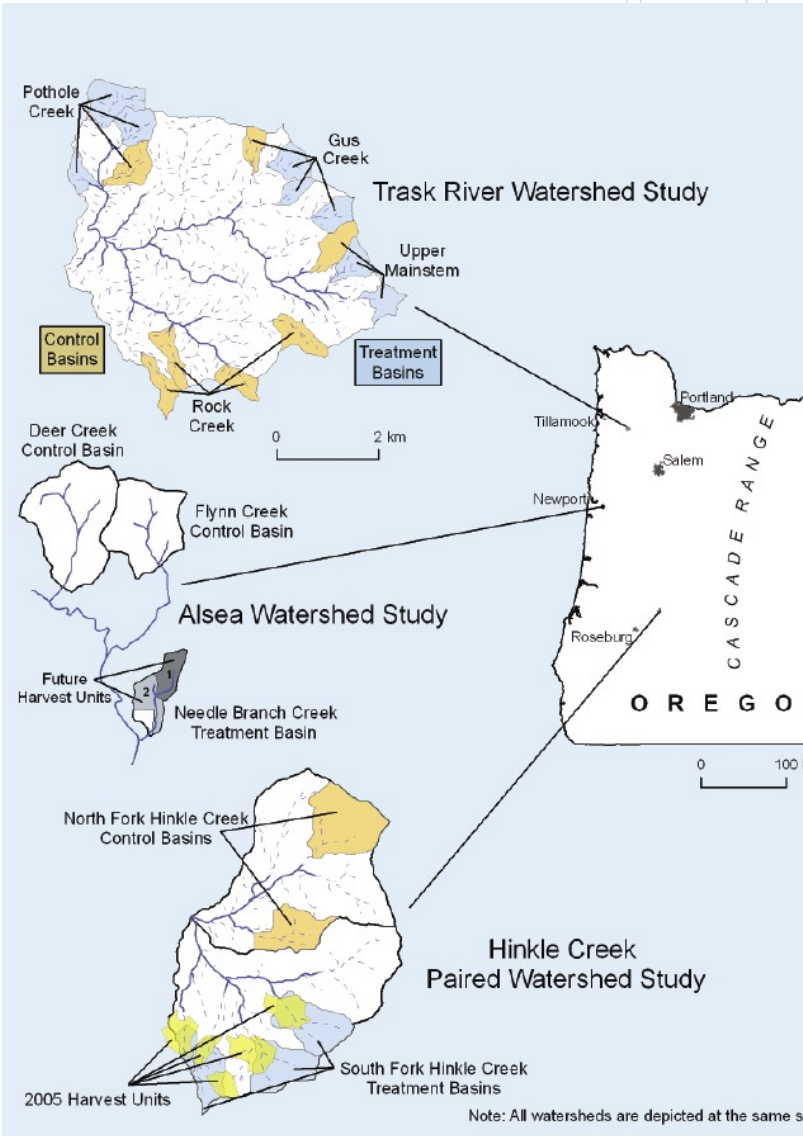
## INTERDISCIPLINARY TEAM OF COLLABORATORS

The Trask River Watershed Study is conducted by an interdisciplinary team of researchers from Oregon State University (OSU), the Pacific Northwest Research Station of the U.S. Forest Service, Forest and Rangeland Ecosystem Science Center of the U.S. Geological Survey (USGs), Weyerhaeuser Company and the Oregon Department of Forestry (ODF). Additional collaborators include Oregon natural resource agencies and local groups such as watershed councils. Additional information, including summaries of findings, is available at the Watersheds Research Cooperative, ODF and USGS Web sites.


Photo: Linda Ashkenas

## ONE OF THREE LONG-TERM WATERSHED STUDIES

The Trask River Study is one of three long-term watershed studies underway in Oregon evaluating the effects of forest harvest on streams. The other long-term studies include the Hinkle Creek Study and the Alsea Watershed Study. These studies are managed by the Watersheds Research Cooperative (WRC), an umbrella organization for environmental research in Pacific Northwest watersheds affected by forest management practices. The WRC is a collaboration of individuals, companies, organizations and agencies, with primary leadership provided by the Oregon State University College of Forestry.




To learn more about the Watersheds Research Cooperative and its collaborators, or to view reports from the individual watershed studies, visit www.watershedsresearch.org.

WATERSHEDS RESEARCH COOPERATIVE

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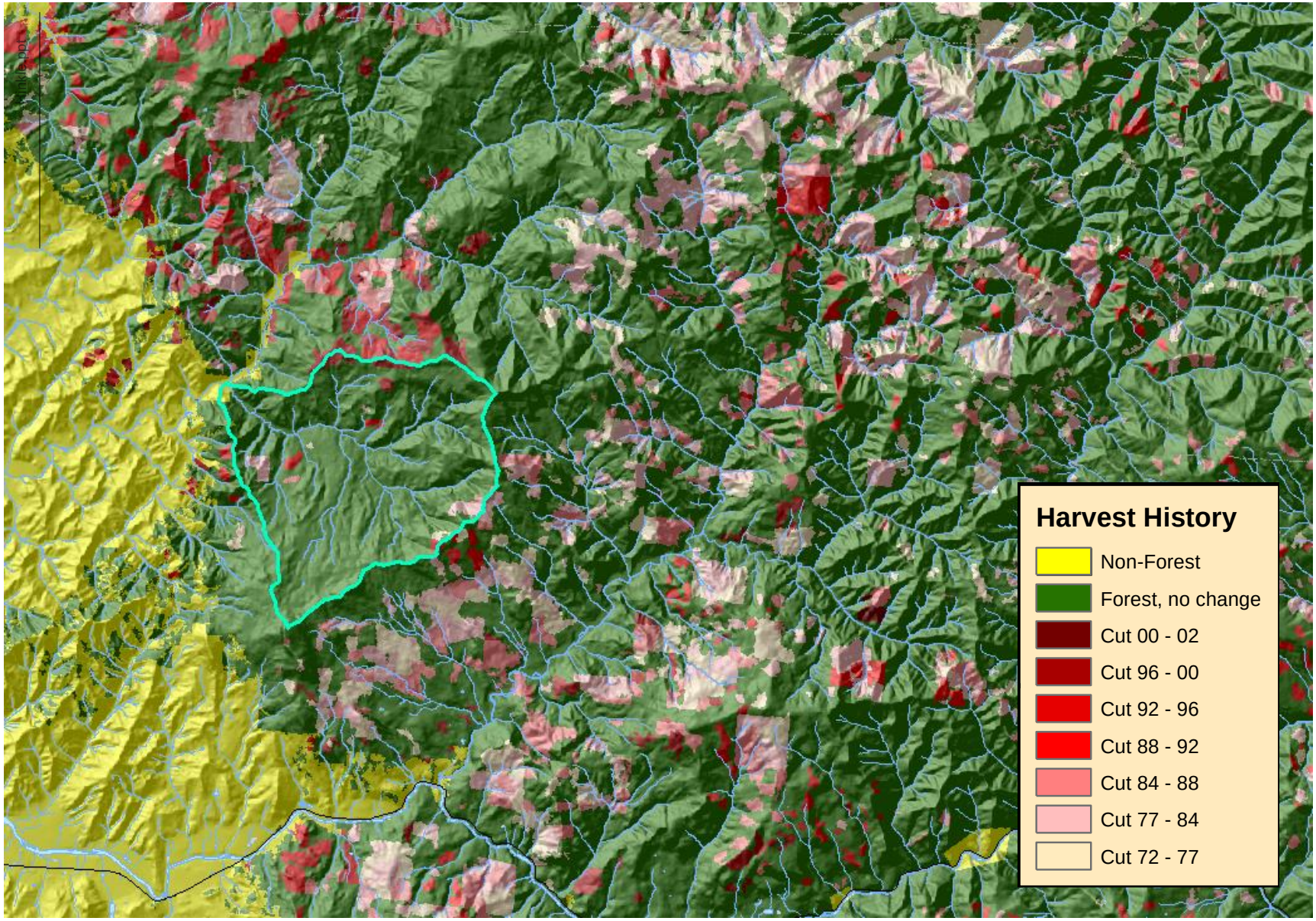
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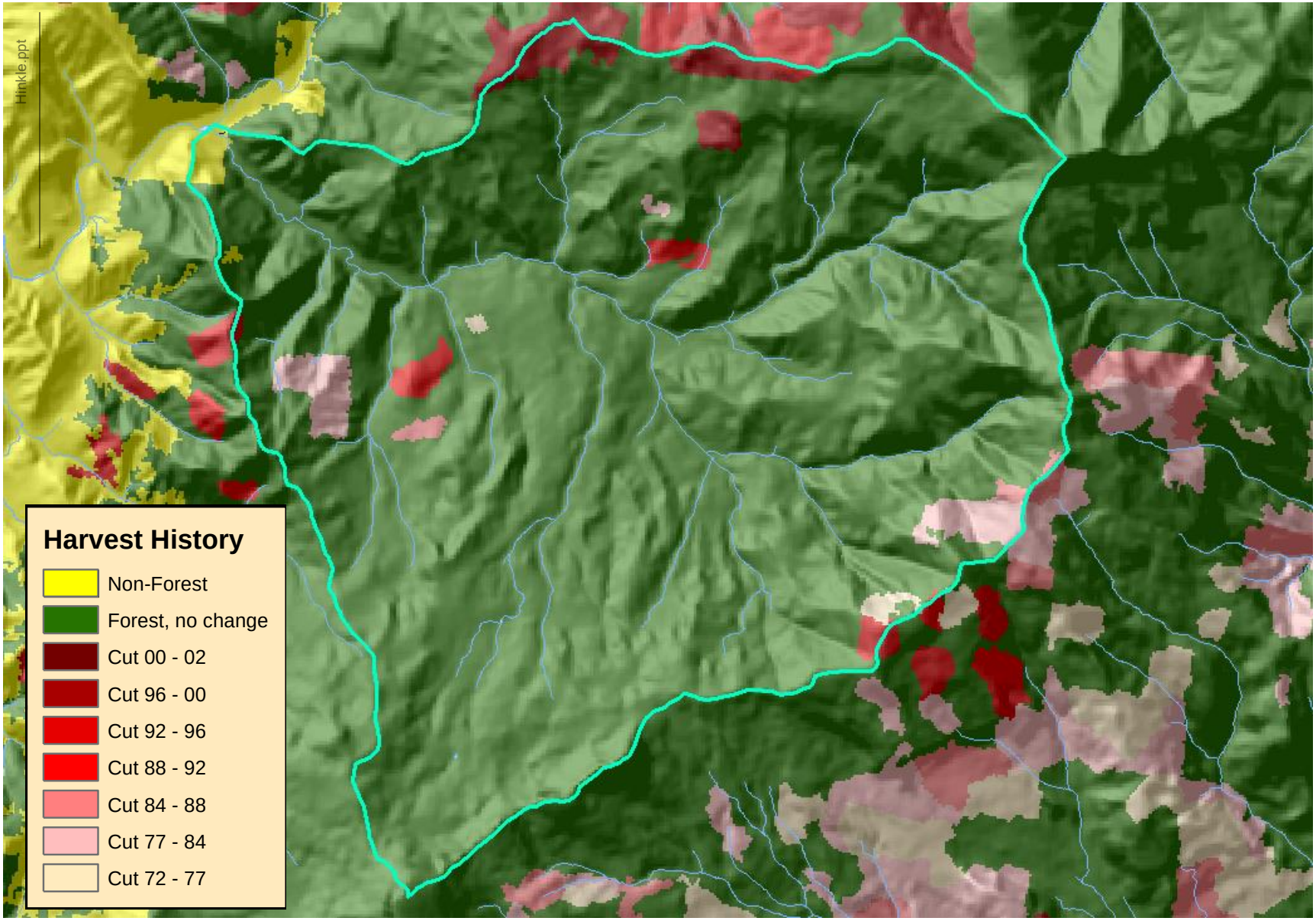
Cut 96 - 00
Cut 92 - 96
Cut 88 - 92
Cut 84 - 88
Cut 77 - 84
Cut 72 - 77


Hinkle.ppt
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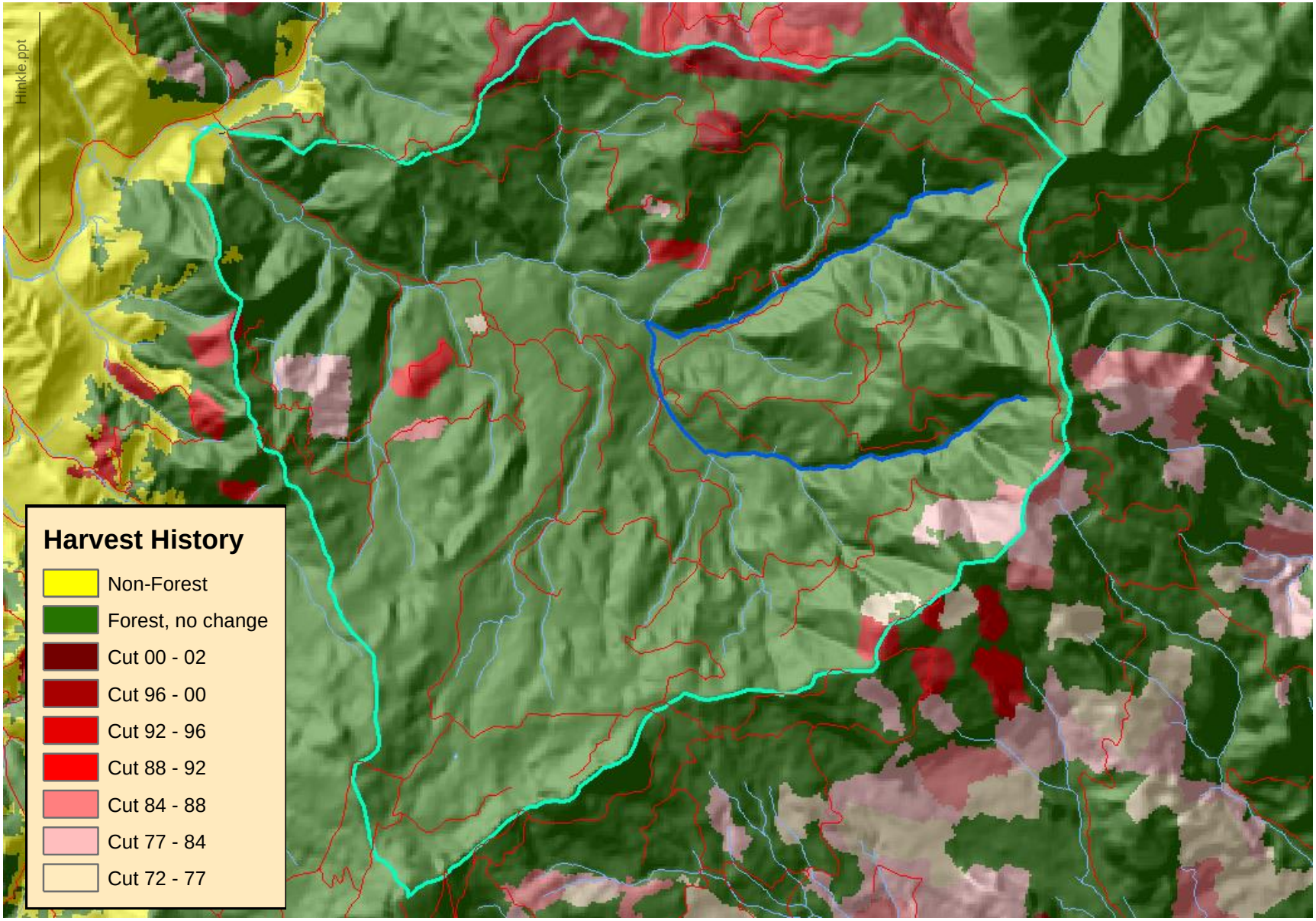
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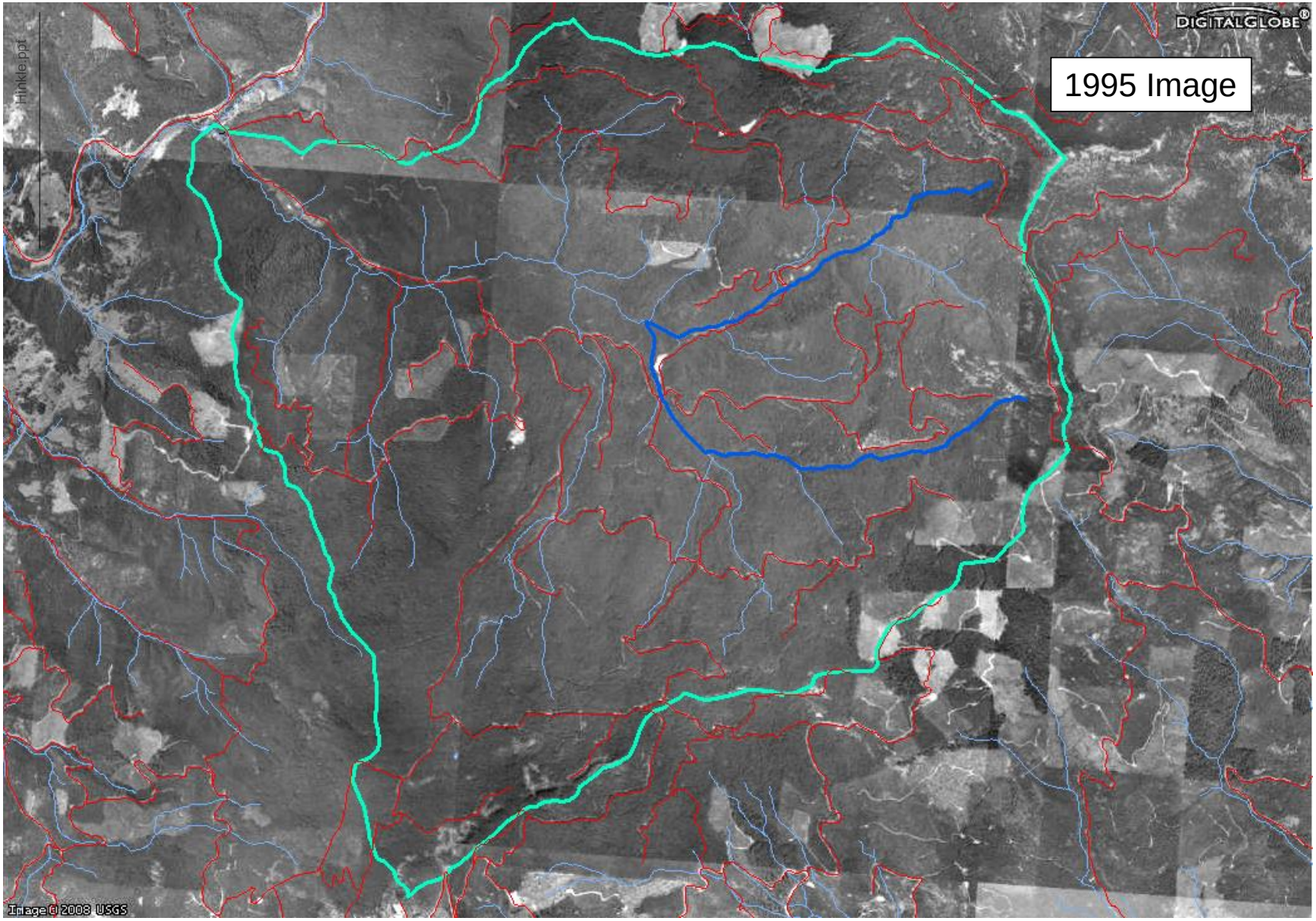
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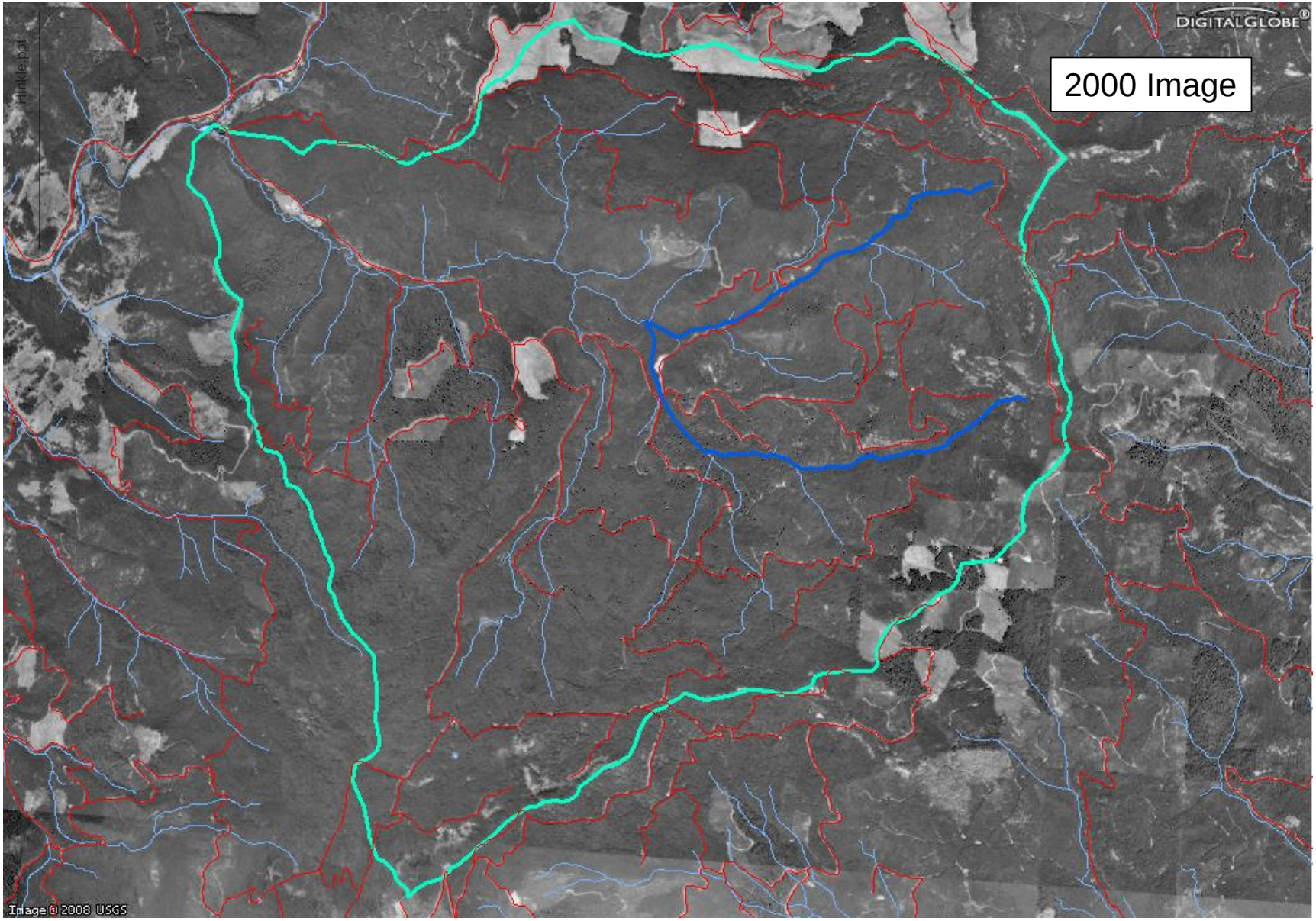
1995 Image
Image © 2008 USGS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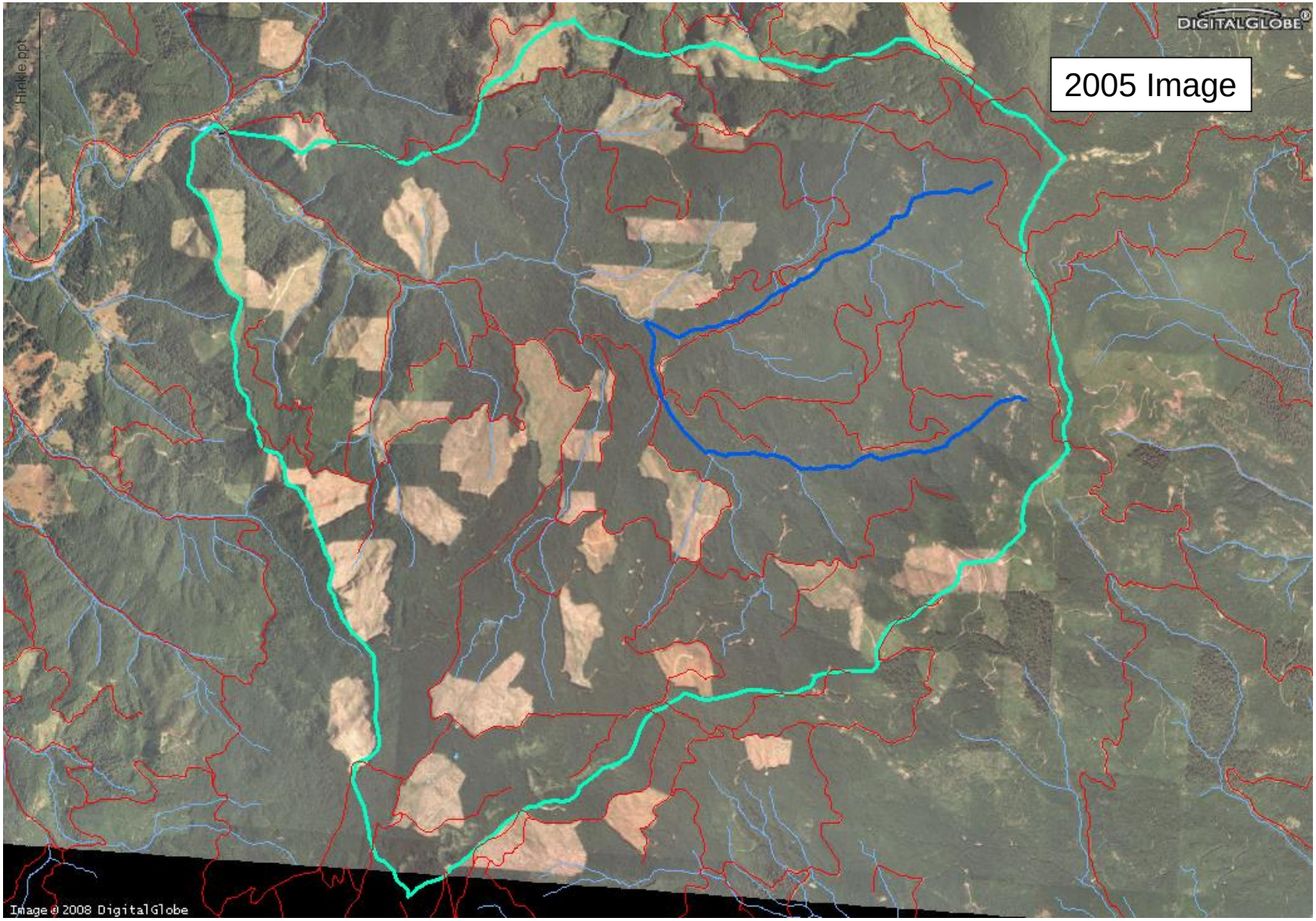
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2005 Image
Image © 2008 DigitalGlobe

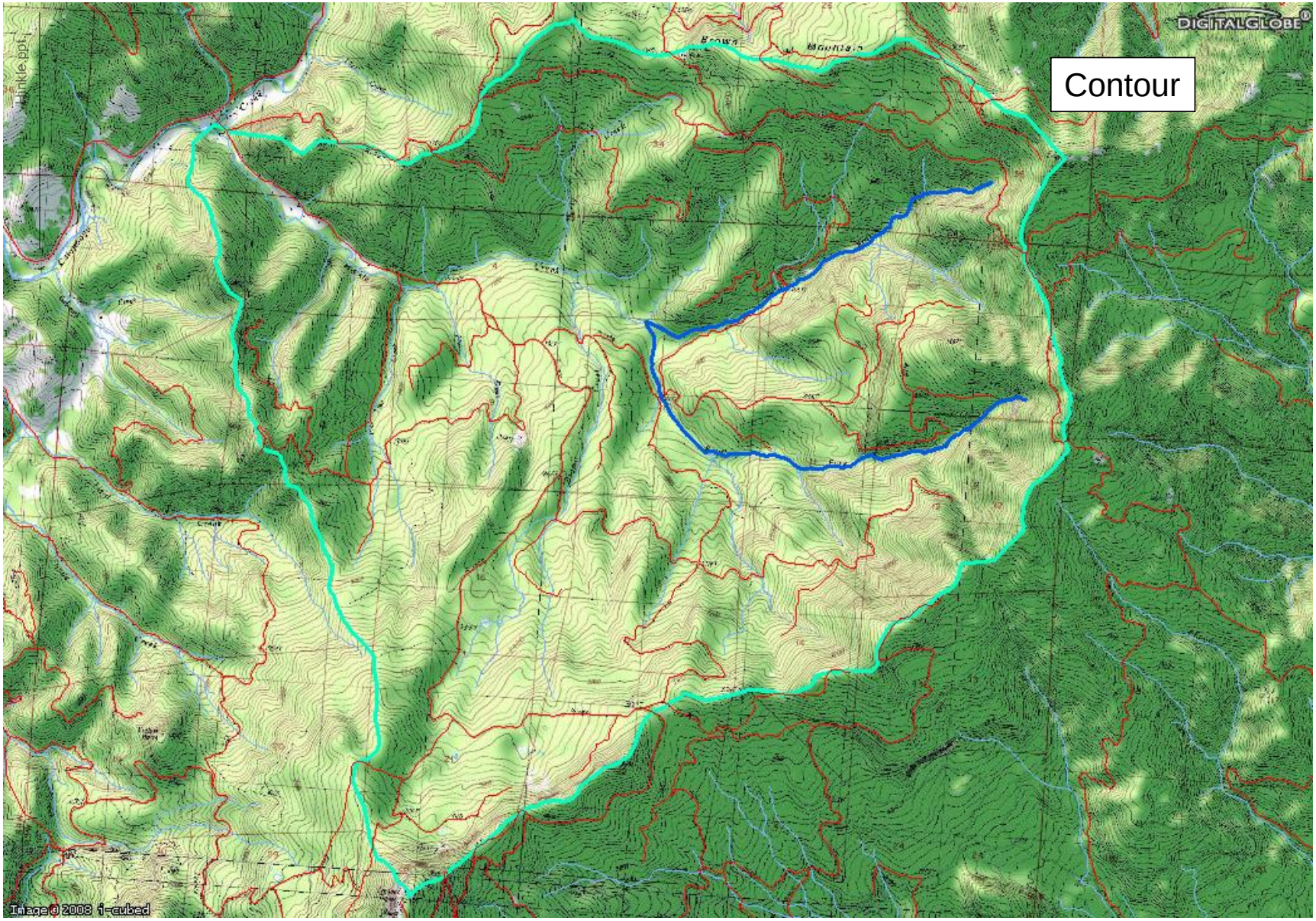
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Image © 2008 i-cubed